(a) $\left.\begin{array}{l} 2x+3y=13 \\ 3x+2y=12 \end{array}\right\} \begin{array}{l} \longrightarrow 2x=13-3y\,;\ x=\dfrac{13-3y}{2} \\ \longrightarrow 3x=12-2y\,;\ x=\dfrac{12-2y}{3} \end{array}$

$\dfrac{13-3y}{2}=\dfrac{12-2y}{3}\,;\ \dfrac{39-9y}{6}=\dfrac{24-4y}{6}$

$39-9y=24-4y\,;\ 9y-4y=39-24\,;\ 5y=15$

$y=\dfrac{15}{5}\,;\ \boxed{y=3}$

$x=\dfrac{12-2y}{3}\,;\ \xrightarrow{y=3}\ x=\dfrac{12-2\cdot 3}{3}\,;\ x=\dfrac{6}{3}\,;\ \boxed{x=2}$

(b) $\left.\begin{array}{l} \dfrac{x}{2}+\dfrac{y}{3}=0 \\ 3x-y=3 \end{array}\right\} \xrightarrow[\text{denominadores}]{\text{quitar}} \dfrac{3x}{6}+\dfrac{2y}{6}=\dfrac{0}{6}$

$\Downarrow$

$\left.\begin{array}{l} 3x+2y=0 \\ 3x-y=3 \end{array}\right\} \begin{array}{l} \longrightarrow 2y=-3x\,;\ y=\dfrac{-3x}{2} \\ \longrightarrow y=3x-3 \end{array}$

$\dfrac{-3x}{2}=3x-3\,;\ -3x=2(3x-3)\,;\ -3x=6x-6$

$6x+3x=6\,;\ 9x=6\,;\ x=\dfrac{6}{9}\,;\ \boxed{x=\dfrac{2}{3}}$

$y=3x-3\ \xrightarrow{x=2/3}\ y=3\left(\dfrac{2}{3}\right)-3\,;\ y=2-3\,;\ \boxed{y=-1}$

(c) $\left.\begin{array}{l} \dfrac{x-1}{4}-\dfrac{y+2}{3}=0 \\ \dfrac{x+3}{5}-\dfrac{y-2}{4}=2 \end{array}\right\}$ 1°) Quitar denominadores

$\left.\begin{array}{l} \dfrac{3x-3}{12}-\dfrac{4y+8}{12}=\dfrac{0}{12} \\ \dfrac{4x+12}{20}-\dfrac{5y-10}{20}=\dfrac{40}{20} \end{array}\right\} \left\{\begin{array}{l} 3x-3-4y-8=0 \\ 4x+12-5y+10=40 \end{array}\right.$

$\left.\begin{array}{l} 3x-4y=11 \\ 4x-5y=18 \end{array}\right\}$

$$\left.\begin{array}{l} 3x-4y=11 \\ 4x-5y=18 \end{array}\right\} \begin{array}{l} \longrightarrow 3x=11+4y\,;\quad x=\dfrac{11+4y}{3} \\ \longrightarrow 4x=18+5y;\quad x=\dfrac{18+5y}{4} \end{array}$$

$$\frac{11+4y}{3}=\frac{18+5y}{4}\,;\quad \frac{44+16y}{12}=\frac{54+15y}{12}$$

$$16y-15y=54-44\,;\quad \boxed{y=10}$$

$$x=\frac{11+4y}{3}\,;\ \xrightarrow{y=10}\ x=\frac{11+4\cdot 10}{3}\,;\quad x=\frac{51}{3}\,;\quad \boxed{x=17}$$

(d) $$\left.\begin{array}{l} \dfrac{5(x-2)}{3}-\dfrac{3(y+1)}{4}=\dfrac{x-7y}{12} \\ \dfrac{6-(x+y)}{2}-\dfrac{(5-x)4}{5}=\dfrac{x+2y}{10} \end{array}\right\}$$ 1°) Quitar paréntesis. 2°) Quitar denominadores.

$$\left.\begin{array}{l} \dfrac{5x-10}{3}-\dfrac{3y+3}{4}=\dfrac{x-7y}{12} \\ \dfrac{6-x-y}{2}-\dfrac{20-4x}{5}=\dfrac{x+2y}{10} \end{array}\right\} \left.\begin{array}{l} \dfrac{20x-40}{12}-\dfrac{9y+9}{12}=\dfrac{x-7y}{12} \\ \dfrac{30-5x-5y}{10}-\dfrac{40-8x}{10}=\dfrac{x+2y}{10} \end{array}\right\}$$

$$\left.\begin{array}{l} 20x-40-9y-9=x-7y \\ 30-5x-5y-40+8x=x+2y \end{array}\right\}$$ Ahora agrupamos "x", "y" y los términos independientes

$$\left.\begin{array}{l} 20x-x-9y+7y=40+9 \\ -5x+8x-x-5y-2y=-30+40 \end{array}\right\} \quad \left.\begin{array}{l} 19x-2y=49 \\ 2x-7y=10 \end{array}\right\}$$

$$\left.\begin{array}{l} 19x-2y=49 \\ 2x-7y=10 \end{array}\right\} \begin{array}{l} \longrightarrow 19x=49+2y\,;\quad x=\dfrac{49+2y}{19} \\ \longrightarrow 2x=10+7y;\quad x=\dfrac{10+7y}{2} \end{array}$$

$$\frac{49+2y}{19}=\frac{10+7y}{2}\,;\quad \frac{98+4y}{38}=\frac{190+133y}{38}$$

$$98+4y=190+133y\,;\quad 133y-4y=98-190\,;\quad 129y=-92$$

$$\boxed{y=\frac{-92}{129}} \ /\!/\ x=\frac{10+7y}{2} \xrightarrow{y=-92/129} x=\frac{10+7\left(-92/129\right)}{2}$$

$$x=\frac{10-\frac{644}{129}}{2}\,;\quad x=\frac{1}{2}\left(10-\frac{644}{129}\right)\,;\quad \boxed{x=\frac{323}{129}}$$